



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,505	06/18/2001	Yoshiya Sakaguchi	43890-522	1376

20277 7590 11/04/2002

MCDERMOTT WILL & EMERY
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

GOFF II, JOHN L

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,505

Applicant(s)

SAKAGUCHI ET AL.

Examiner

John L. Goff

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In claim 1, the phrase “stacking a plurality of sheet-like materials” is unclear and confusing. It is uncertain what is meant by the word “sheet-like”. It is suggested to change “sheet-like” to - - sheet - -. This issue should be clarified and reworded as appropriate.

4. In claim 7, the phrase “a size of said elastic bodies” is unclear and confusing. It is uncertain what is meant by the word “size”. Does it mean the surface area of the elastic bodies? This issue should be clarified and reworded as appropriate.

5. In claim 20, the phrase “box-like rigid body” is unclear and confusing. It is uncertain what is meant by the word “box-like”. Does it mean a rectangular or square rigid body? This issue should be clarified and reworded as appropriate.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6, 9-11, 13, and 17-19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hass et al. (U.S. Patent 5,573,622).

Hass et al. are directed to a method and apparatus for laminating multilayer structures used in the electronics industry (Column 1, lines 12-14 and Column 2, lines 26-29). Hass et al. teach a method for laminating the multilayer structure comprising placing a multilayer stack of green sheets having asperities on a rigid plate, placing a deformable, resilient body on the stack, and applying heat and pressure via a press to the resilient body and the stack to bond the layers of the multilayer structure together (Figures 2 and 3 and Column 1, lines 43-46 and Column 3, lines 12-25 and Column 4, lines 40-47 and 57-65 and Column 5, lines 46-55 and Column 8, lines 37-41 and 59-61). Hass et al. further teach placing a barrier/release sheet between the multilayer stack and the resilient body and preheating the resilient body, stack, and press prior to lamination (Column 6, lines 24-26 and 32-37 and Column 7, lines 15-21). In an alternate embodiment, Hass et al. teach using a resilient body with a greater width than the multilayer stack, and Hass et al. teach placing the multilayer stack between two resilient bodies rather than one resilient body and a rigid plate (Figure 4 and Column 7, lines 56-58 and 63-67 and Column 8, lines 1 and 4-9). It is noted the press provides a framework for covering the multilayer stack (Figures 2 and 3), and the

Art Unit: 1733

resilient body provides a framework for covering the multilayer stack in the alternate embodiment (Figure 4).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 7, 8, 14-16, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hass et al.

As noted above, Hass et al. are directed to a method and apparatus for laminating multilayer structures used in the electronics industry.

Regarding claims 7 and 8, Hass et al. are silent as to the surface area of the barrier/release sheet being larger than the contact area between the sheet and the multilayer stack. However, one of ordinary skill in the art at the time the invention was made performing the alternate

Art Unit: 1733

embodiment (Figure 4) taught by Hass et al. would have readily appreciated using a barrier/release sheet with a surface area larger than the contact area between the sheet and the multilayer stack to ensure the resilient bodies do not adhere to one another.

Regarding claims 14-16 and 22, Hass et al. are silent as to a specific teaching for depressurizing the multilayer structure prior to lamination. However, Hass et al. teach evacuating the air in the multilayer using conventional means known to one in the art which would have included depressurizing the multilayer prior to lamination (Column 8, lines 13-19).

Regarding claims 20, 21, and 23, it is noted Hass et al. teach a first pressing force application member with an elastic body provided in a box-like rigid body, and a second pressing force application member with an elastic body provided on a flat rigid body (Figure 4). Hass et al. are silent as to the second pressing force application member comprising an elastic body provided in a box-like rigid body. However, the box-like rigid body of the first member extends to enclose the second member, and one of ordinary skill in the art at the time the invention was made would have readily appreciated shortening the box-like body of the first member while providing a box-like extension to the second member to form a second box-like rigid body as only the expected results would be achieved. It is noted the box-like rigid body of the first application member provides a frame for the multilayer structure, and while not specifically recited one would have readily appreciated using a support means to secure the resilient body of the upper member.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hass et al. as applied above in paragraph 6, and further in view of Natarajan et al. (U.S. Patent 5,759,320).

Art Unit: 1733

Hass et al. as applied above teach all of the limitations in claim 12 except for a teaching on using a framework that is equal to or less than the thickness of the multilayer structure. It is noted Hass et al. teach an alternate second embodiment wherein the multilayer does not have a framework (Figure 5 and Column 8, lines 20-22). However, it is known in the art to provide the multilayer with a framework prior to bonding to prevent the green sheets of the multilayer from sliding during lamination as shown by Natarajan et al. One of ordinary skill in the art at the time the invention was made reading Hass et al. in view of Natarajan et al. would have readily appreciated incorporating into the alternate second embodiment (Figure 5) taught by Hass et al. a frame as suggested by Natarajan et al. to prevent the green sheets of the multilayer from sliding during lamination.

Natarajan et al. are directed to a method and apparatus for laminating a multilayer stack of green sheets that contain cavities (asperities) (Column 1, lines 16-21). Natarajan et al. teach a method for laminating the multilayer stack comprising placing a multilayer stack of green sheets on a rigid plate, placing an elastic body on the stack, and applying heat and pressure via a press to the elastic body and the stack to bond the layers of the multilayer structure together (Figures 4-7 and Column 4, lines 65-67 and Column 5, lines 1-5, 9-14, and 66-67 and Column 6, lines 1-5, 7-10, 14-18 and 28-31 and Column 8, lines 8-10). Natarajan et al. further teach placing a frame around the multilayer to prevent the green sheets of the multilayer from sliding during lamination and placing the stack, elastic body, and press within an environmental enclosure prior to lamination (Column 6, lines 10-14 and Column 8, lines 50-55).

12. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan et al. in view of Hass et al.

Art Unit: 1733

As noted above, Natarajan et al. are directed to a method and apparatus for laminating a multilayer stack of green sheets that contain cavities (asperities) (Column 1, lines 16-21). Natarajan et al. teach a method for laminating the multilayer stack comprising placing a multilayer stack of green sheets on a rigid plate, placing an elastic body on the stack, and applying heat and pressure via a press to the elastic body and the stack to bond the layers of the multilayer structure together (Figures 4-7 and Column 4, lines 65-67 and Column 5, lines 1-5, 9-14, and 66-67 and Column 6, lines 1-5, 7-10, 14-18 and 28-31 and Column 8, lines 8-10). Natarajan et al. further teach placing a frame around the multilayer to prevent the green sheets of the multilayer from sliding during lamination and placing the stack, elastic body, and press within an environmental enclosure prior to lamination (Column 6, lines 10-14 and Column 8, lines 50-55).

Regarding claim 1, Natarajan et al. are silent as to preheating the multilayer stack, elastic body, and press prior to lamination. It is noted Natarajan et al. teach performing the lamination using heat and pressure. As shown above, Hass et al. are directed to a method and apparatus for laminating multilayer structures used in the electronics industry. Hass et al. teach preheating the resilient body and stack prior to lamination (Column 7, lines 15-21). One of ordinary skill in the art at the time the invention was made reading Natarajan et al. in view of Hass et al. would have readily appreciated preheating the stack, elastic body, and press taught by Natarajan et al. as suggested by Hass et al. as only the expected results would be achieved.

Regarding claim 3, Natarajan et al. are silent as to the elastic body having a thickness greater than that of the multilayer stack. However, the thickness of the multilayer stack depends upon the number of layers comprising the stack, and thus, one of ordinary skill would have

Art Unit: 1733

readily appreciated using an elastic body with a large enough thickness to ensure proper lamination when laminating multilayer stacks with a varying number of layers.

Regarding claims 4 and 11, Natarajan et al. are silent as to using an elastic body with a larger thickness than that of the contact area between the body and the multilayer stack. However, it is known in the art to use an elastic body with a larger thickness than that of the contact area between the body and the multilayer stack to laminate a plurality of stacks at once as shown above by Hass et al. Hass et al. teach using an elastic body with a larger thickness than that of the contact area between the body and the multilayer stack to laminate a plurality of stacks (Figure 4 and Column 7, lines 56-67 and Column 8, lines 1 and 4-9). One of ordinary skill in the art at the time the invention was made reading Natarajan et al. in view of Hass et al. would have readily appreciated modifying the method taught by Natarajan et al. to include an elastic body with a larger thickness than that of the contact area between the body and the multilayer stack as suggested by Hass et al. to laminate a plurality of stacks.

Regarding claims 6-8, Natarajan et al. are silent as to inserting a non-adhesive film between the elastic body and the multilayer stack. However, it is known in the art to insert a barrier/release layer between the elastic body and the multilayer stack to ensure there is no adhesion between the body and stack as shown above by Hass et al. Hass et al. teach placing a barrier/release sheet between the multilayer stack and the resilient body to ensure there is no adhesion between the body and the stack (Column 6, lines 23-25 and 32-39). One of ordinary skill in the art at the time the invention was made reading Natarajan et al. in view of Hass et al. would have readily appreciated modifying the method taught by Natarajan et al. to include a

Art Unit: 1733

barrier/release sheet as suggested by Hass et al. to ensure there is no adhesion between the elastic body and the multilayer stack.

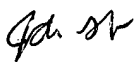
Regarding claims 14-16, Natarajan et al. are silent as to a specific teaching on depressurizing the press prior to lamination. However, as noted above Natarajan et al. teach placing the multilayer stack, elastic body, and press into a fluid barrier container (environmental enclosure) prior to lamination which would have suggested depressurizing the press prior to lamination.


Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


John L. Goff
October 31, 2002


Michael Ball
October 31, 2002